

Application No. 10/711,906
Filed: October 12, 2004
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Examiner: HoangAnh Le
Art Unit: 2821

Amendments to the specification:

Please amend the title to read:

MULTIBAND ANTENNA

Please replace paragraph [0007] with the following amended paragraph:

[0007] According to the invention, a multiband antenna includes a lower conductive tube and first, second, ~~and third, and fourth~~ upper conductive tubes, all of them ~~conductive~~ tubes spaced from each other and disposed on the same longitudinal axis. A first transmission line extends within the lower conductive tube to a first feed point located between and connected to the lower conductive tube and the first upper conductive tube. A second transmission line extends within the lower conductive tube and the first and second upper conductive tubes to a second feed point, ~~located between and connected to the second and third upper conductive tubes.~~ A third transmission line extends within the second upper conductive tube from the second feed point to a third feed point located between and connected to the first and second upper conductive tubes. Finally, a fourth transmission line extends within the third upper conductive tube from the second feed point to a fourth feed point located between and connected to the third and fourth upper conductive tubes. ~~And an isolation circuits is are connected between the first and second upper conductive tubes. The isolation circuit resonates only at a lower frequency band.~~ With this structure, the lower conductive tube and the first, second, ~~and third~~ upper conductive tubes form a center-fed low frequency dipole radiator, centered on the first feed point, that resonates in ~~the a~~ a lower frequency band for signals transmitted along the first transmission line. ~~Also, the first and second and third upper conductive tubes form a 1st high frequency dipole radiator centered on the second third feed point, and the third and fourth upper conductive tubes form a 2nd high frequency dipole radiator centered on the fourth feed point. The 1st and 2nd high frequency dipole radiators that resonates in a higher frequency band for signals transmitted along the second transmission line by way of the second feed point.~~

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Please replace paragraph [0009] with the following amended paragraph:

[0009] In another aspect of the invention, a multiband antenna includes a lower conductive tube and first, second, ~~and third and fourth~~ upper conductive tubes, all of ~~them~~ conductive tubes spaced from each other and disposed on the same longitudinal axis. A first transmission line extends within the lower conductive tube to a first feed point located between and connected to the lower conductive tube and the first upper conductive tube. A second transmission line extends within the lower conductive tube and the first and second upper conductive tubes to a second feed point located between and connected to the second and third upper conductive tubes. ~~A third transmission line extends within the second upper conductive tube from the second feed point to a third feed point located between and connected to the first and second upper conductive tubes.~~ Finally, ~~a fourth transmission line extends within the third upper conductive tube from the second feed point to a fourth feed point located between and connected to the third and fourth upper conductive tubes.~~ And an isolation circuit is connected between the first and second upper conductive tubes. The isolation circuit comprises a capacitor connected in parallel with an inductor, and both are connected in series with another capacitor so that it resonates at a lower frequency band. With this structure, the lower conductive tube and the first, second, and third upper conductive tubes form a ~~center-fed low-frequency dipole radiator, centered on the first feed point, that resonates in a the~~ lower frequency band for signals transmitted along the first transmission line. ~~Also, the first and second and third upper conductive tubes form a 1st high-frequency dipole radiator centered on the third-second feed point, and the third and fourth upper conductive tubes form a 2nd high-frequency dipole radiator centered on the fourth feed point. The 1st and 2nd high-frequency dipole radiators that resonates in a higher frequency band for signals transmitted along the second transmission line, by way of the second feed point.~~